2003 Urban Water Conservation Proposal

San Francisco Public Utilities Commission

Air Cooled Ice Machine Rebate Program

December 3, 2002

Application Part A — Project Description, Organizational, Financial and Legal Information

A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): San Francisco Public Utilities Commission
2. Project Title: Rebates for Water Cooled Ice Machines

3. Person authorized to sign and submit proposal:

Name, Title	Michael Carlin
Mailing address	1145 Market St, Suite 401
Telephone	415 934 5787
Fax	415 934 5750
E-mail	mcarlin@puc.sf.ca.us

4. Contact person (if different):

Name, Title	Suzanne Arena
Mailing address	1145 Market St, Suite 401
Telephone	415 934 5701
Fax	415 934 5750
E-mail	sarena@puc.sf.ca.us

5. Funds requested (dollar amount): $50,000
6. Applicant funds pledged (local cost share) (dollar amount): $13,900
7. Total project costs (dollar amount): $63,900

8. Estimated net water savings (acre-feet/year):
   Estimated total amount of water to be saved (acre-feet): 143
   Over years 10 years

   Benefit/cost ratio of project for applicant: _$628/_$456_
   Estimated $/acre-feet of water to be saved: _$628__

9. Project life (month/year to month/year): 10/03-10/05
10. State Assembly District where the project is to be conducted: 12 & 13
11. State Senate District where the project is to be conducted: 3 & 8
12. Congressional District(s) where the project is to be conducted: 8
13. County where the project is to be conducted: San Francisco
14. Do the actions in this application involve physical changes in land use, or potential future changes in land use?
    (a) Yes
    (if yes, complete the land use check list at http://www.calfed.water.ca.gov/adobe_pdf/Questionnaires_EC_Permits_LandUse.pdf and submit it with the proposal

    (b) No No

A-2 Application Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the application;

The individual signing the form is authorized to submit the application on behalf of the applicant;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the application on behalf of the applicant; and

The applicant will comply with all terms and conditions identified in this Application Package if selected for funding.

_____	_____	_____
Signature	Name and title	Date

A-3 Application Checklist

Complete this checklist to confirm all sections of this application package have been completed.

Part A: Project Description, Organizational, Financial and Legal Information

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_____A-2 Application Signature Page
_____A-3 Application Checklist
_____A-4 Description of project
_____A-5 Maps
_____A-6 Statement of work, schedule
_____A-7 Agency authority
_____A-8 Operation and maintenance (O&M)
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Part B: Engineering and Hydrologic Feasibility (construction projects only)

_____B-1 Certification statement
_____B-2 Project reports and previous studies
_____B-3 Preliminary project plans and specifications
_____B-4 Construction inspection plan

Part C: Plan for Environmental Documentation and Permitting

_____C-1 CEQA/NEPA
_____C-2 Permits, easements, licenses, acquisitions, and certifications
_____C-3 Local land use plans
_____C-4 State and local statutes and regulations

Part D: Need for Project and Community Involvement

_____D-1 Need for project
_____D-2 Community involvement, support, opposition

Part E: Water Use Efficiency Improvements and Other Benefits

_____E-1 Water use efficiency improvements
_____E-2 Other project benefits

Part F: Economic Justification, Benefits to Costs Analysis

_____F-1 Net water savings
_____F-2 Project budget and budget justification
_____F-3 Economic efficiency
_____Benefit/Cost Analysis Tables 1; 2; 3; 4a, 4b, 4c, 4d; and 5

A-4

Description of project

The San Francisco Public Utilities Commission is proposing a financial incentive program for the purchase and installation of air-cooled icemakers. A total of 166 rebates would be made available to commercial and institutional foodservice facilities, hotels, hospitals and supermarkets over a two-year period.

This program would offer to the City's commercial and institutional customers a chance to retrofit their water-cooled ice machine with a rebate of $300 per machine. Facilities would be limited to up to two rebates. Since water-cooled ice machines use an average of 1.2 ccf per day and the average restaurant (for example) is open six days per week and 312 days per year, therefore approximately 37 ccfs of water per machine could be saved per year per average ice machine retrofit. With 166 machines, a total of 6,142 ccf (143 acre-feet) would be saved per year.

The SFPUC and its customers have a proven record of, commitment to, and implementation of a variety of water conservation programs. This new program would compliment existing conservation programs such as interior and exterior water audits, residential plumbing retrofits, leak detection, landscape, high efficiency clothes washer rebates, and ultra-low-flush toilet rebates. The SFPUC would like to expand into other areas for potential water savings. The primary objective of the proposed program is to save water in a cost effective manner that is responsive to customer needs.

The goal of the Proposition 13 Water Conservation Program is to accelerate the implementation of cost effective actions to help meet the growing demand for clean and abundant water supplies throughout the state. The SFPUC believes that an air-cooled ice machine rebate program will help achieve this goal by yielding significant savings in an area yet to be reached in San Francisco. The SFPUC believes that this grant will allow for the establishment of a new and exciting water conservation program. With 166 machines, a total of 6,142 ccf (14 acre-feet) would be saved per year. This equates to a cost benefit of $628 to $456 or 2.14

A-5 Maps

No maps required for this project

A-6 Statement of Work, Schedule

The SFPUC's Water Conservation Section will administer the program. The Water Conservation Section has a proven track record of administering water conservation rebate programs in San Francisco. The Section will be responsible for the following tasks:

1. Design, marketing and promotional materials to commercial and institutional foodservice facilities, hotels, hospitals and supermarkets for water-cooled retrofit rebates
2. Act as a liaison with the targeted facilities and the SFPUC

3. Design and print rebate forms
4. Process rebates
5. Develop and maintain a database of customer's receiving the rebates and types of equipment retrofit
6. Oversee and verify retrofit acting also as a liaison as needed
7. Administer a customer satisfaction survey
8. Submit requisite programmatic and fiscal reports of program activities and successes as required by DWR

See Attachment A for schedule of tasks

A-7 Monitoring and evaluation

The SFPUC Water Conservation Section will conduct monitoring and assessment of the new program. The Section will maintain a database indicating customer rebate amounts paid, rebates received and balance due year to date. On a quarterly basis the Conservation Section will also provide the Commission (the overseeing governing body) a spreadsheet listing the name, address and account number of the rebate applicant, customer satisfaction information and pre and post project water savings information after the equipment is retrofitted. Customer satisfaction surveys will be administered to gauge the success of the program and solicit comments and suggestions and take corrective measures as necessary. Quarterly reports will be issued to the Department of Water Resources and be made available electronically.

Expected outcomes:

Quantification of water savings will be based on information from the Air-Conditioning and Refrigeration Institute. We expect to see an average of 900 gallons or 1.2 ccf per day per machine that is retrofitted. Pre- and post- meter readings will track the savings of the machines. Quarterly spreadsheets will document the actual water savings.

Performance measures:

1. Complete development and printing of rebate materials by end of 1st Quarter
2. Begin marketing and liaison activities by beginning of 2nd Quarter
3. Review customer satisfaction surveys and take corrective measures as necessary end of 4th Quarter
4. Document water savings end of 4th Quarter

A-8 Qualifications of Applicant

Ms. Kim Knox, Water Conservation Coordinator, will be the project manager. See resume Attachment B

A-9 Innovation

Retrofit of water-cooled ice machines is a fairly new area for water conservation efforts. The cost for the air-cooled machines is high but the potential water savings is

significant. Water cooled ice machines use 100 times more water than air-cooled ice machines. The energy usage for the air-cooled machines is higher than the water-cooled machines, however, appropriate configuration of the equipment greatly helps control energy costs. SFPUC's Water Conservation Section will act as a liaison to the facilities to assure customer satisfaction and proper configuration of the equipment to ensure maximum water and energy efficiency. We believe that the opportunity will allow SFPUC to educate the qualified facilities about water and energy efficiency. While acting as a liaison, staff can also educate the facilities about our ultra low flush toilet sales and other opportunities for water savings.

A-10 Agency Authority

1. SFPUC has the legal authority to submit this application and enter into a funding contract. A resolution of support for this application will be forthcoming.

2. SFPUC is the department of the City and County of San Francisco (a Charter City), which is responsible for delivering water to the City and County of San Francisco and for operateing the regional water system known as Hetch Hetchy.

3. No election is required before entering into a funding contract with the State.

4. The funding agreement will be subject to the review of the City and County of San Francisco City Attorneys office. The City Attorney has already reviewed this application and does not foresee any potential conflicts.

5. There is no pending litigation that would impact the SFPUC's ability to complete this proposed project.

A-11 Operations and Maintenance

Not required for this proposed project.

Part B Engineering and Hydrologic Feasibility

Not required for this proposed project.

Part C Plan for Environmental Documentation and Permitting

This proposed project would not be subject to CEQA or NEPA.

Part D Need for Project and Community Involvement

D-1 Need for Project

The efficient use of California's limited water supplies is a critical local, regional, and statewide issue. In an effort to address this issue, the SFPUC has made, and will continue to make investments in water use efficiency programs that will:

- Delay the need to examine other sources of future water supplies

- Achieve objectives detailed in the SFPUC's 2000 Urban Water Management Plan
- Comply with its obligations as a signatory to the California Urban Water Conservation Council's Memorandum of Understanding Regarding Urban Water Conservation in California (MOU)

The purpose of this Program is to significantly increase water use efficiency by offering financial incentives to purchase air-cooled ice machines. Implementation of this program fulfills Best Management Practice Number 9, Conservation Programs for Commercial, Industrial, Institutional Accounts, as defined in the MOU. Water-cooled ice machines use 100 times more water than air-cooled ice machines. Awarding of this grant will allow SFPUC to enter into a new arena of water conservation and achieve significant water savings for the City and for our commercial and institutional customers.

This proposal has the potential to positively impact the Bay-Delta systems. Through the installation of air-cooled ice machines, water quality in the San Francisco Bay may be improved by reducing the amount of wastewater flows. In addition, conservation efforts will slow the need to examine sources of future water supplies other than Hetch Hetchy. The SFPUC's conservation efforts are important as part of a long-term, comprehensive effort to reduce pressure on the Bay-Delta system to meet regional and statewide water needs. One of the fundamental objectives of the CALFED Bay-Delta Program is to reduce the disparity between Bay-Delta water supplies, and current and projected beneficial uses dependent on the Bay-Delta system. Water use efficiency projects are one of the cornerstone strategies that CALFED is implementing to achieve this objective. Incentives for the purchase and installation of air-cooled ice machines will reduce the demand for a significant urban use of Bay-Delta water supplies.

This is a locally cost-effective program relative to savings in production and operating costs as shown in Part F. This Project is compatible with goals included in the SFPUC's 2000 Urban Water Management Plan and its ongoing efforts to achieve greater water use efficiency through programs for reducing long-term commercial and institutional water demands.

D-2 Outreach, Community Involvement, Support and Opposition

Public outreach efforts will be made during the course of the air-cooled ice machine rebate program. In addition, other program components include appliance dealer training, capacity building, and a plan for disseminating information.

<u>Outreach Efforts</u>

An effective public outreach effort is essential to the project's success. Customer contact will be made through various means including the Chamber of Commerce, district merchant associations, the Golden Gate Restaurant Association, the Board of Supervisor's public hearings and disadvantaged community members, to promote and reinforce water use efficiency by providing financial incentives to purchase air cooled ice machines. The partnership that has already been developed between the

SFPUC and local environmental and community groups through the SFPUC's other successful conservation programs (such as the toilet sales where we allow community groups and schools to host the sales as a fundraiser) will ensure that a large and economically diverse customer base will be reached.

Part E – Water Use Efficiency Improvements and other Benefits

E-1 Water Use Efficiency Improvements

The benefits of the Program are consistent with water conservation goals included in the SFPUC's 2000 Urban Water Management Plan. The Program is consistent with CALFED's objectives as expressed in its Framework for Action (June 9, 2000) and the Record of Decision that followed. The Program will increase the amount of water saved through conservation by assuring that the SFPUC's commercial and industrial customers are offered financial incentives to retrofit their water inefficient water-cooled ice machines with water efficient air-cooled ice machines.

Through the installation of 166 air-cooled ice machines at a savings of 1.2 ccf per machine per day for a total of 312 days per year, a total of 143 acre-feet of water per year will be saved and 1,430 acre-feet over the estimated 10-year life of the machines. This Program will support DWR's and CALFED's water conservation objectives in the following manner:

- Delay the need to examine other sources of future water supplies.
- Through the installation of air-cooled ice machines, water quality in the San Francisco Bay may be improved by reducing the amount of wastewater flows.
- Enhance the aquatic habitats and ecological functions in the Bay-Delta by water conservation efforts in San Francisco.
- Reduce the disparity between Bay-Delta water supplies, and current and projected beneficial uses dependent on the Bay-Delta system.
- Water Savings and their value are based on the table below:

Benefit/Unit	# of Units	Total Benefit		Present Value Of Total Benefit
Acre-Feet/Machine	Machines	Acre-Feet	Alt. Supply (1)	Alt. Supply (2)
.86	166	144	$ 2,750 per af	$ 396,000/yr

1. Based on alternative supply development cost of $2,750 acre-foot for 8 years, as documented in the "Water Supply Master Plan" prepared by the San Francisco Public Utilities Commission and the Bay Area Water User's Association in February 2000.
2. Based on a discount rate of 6% and a 10-year savings, beginning in year one.

E-2 Other Project Benefits

There are many project benefits that cannot be effectively quantified at this point in time. These are:

- Water conservation through the retrofit of water-cooled ice machines is an innovative new arena of water conservation for water agencies. SFPUC hopes to test this area and act as a model for other water conservation agencies.
- This new program will help the SFPUC investigate more opportunities to help commercial and institutional customers to save water.
- Improved local watershed ecosystem by decreasing diversions from local creeks and reservoirs thereby benefiting in-stream uses.
- Sustained economic health of Bay Area business communities in San Francisco. Water supply reliability is a key element in the continued growth and vitality in California. Water conservation is a primary component of the SFPUC's 2000 Urban Water Management Plan.
- Customer awareness and attitudes towards water conservation are heightened.
- Relief for SFPUC agency infrastructure. The SFPUC can avoid upsizing infrastructure to meet future peak demands through conservation. Water use efficiency decreases the amount of wastewater produced.

Part F – Economic Justification: Benefits to Costs

F-1 Net Water Savings

Through the installation of 166 air-cooled ice machines, a total of 143 acre-feet of water per year will be saved and 1,430 acre feet over the estimated 10-year life of the machines.

F-2 Project Budget and Budget Justification

Table 1: Capital Costs

	Capital Cost Category *(a)*	Cost *(b)*	Contingency Percent *(c)*	Contingency $ *(d)* *(bxc)*	Subtotal *(e)* *(b+d)*
(a)	Land Purchase/Easement	$0			$0
(b)	Planning/Design/Engineering	$0			$0
(c)	Materials/Installation	$0			$0
(d)	Structures	$0			$0
(e)	Equipment Purchases/Rentals	$322			$322
(f)	Environmental Mitigation/Enhancement	$0			$0
(g)	Construction/Administration/Overhead	$0			$0
(h)	Project Legal/License Fees	$0			$0
(i)	Other	$0			$0
(j)	Total **(1)** (a + ... + i)	$0			$322
(k)	Capital Recovery Factor: use Table 6	$0			$0
(l)	Annual Capital Costs (j x k)	$322			$322

(1) Costs must match Project Budget prepared in Section F-2.

Table 2: Annual Operations and Maintenance Costs

Administration *(a)*	Operations *(b)*	Maintenance *(c)*	Other *(d)*	Total *(e)*
$21,402	$16,639		$50,000	$88,041

Table 3: Total Annual Costs

Annual Capital Costs (1) *(a)*	Annual O&M Costs (2) *(b)*	Total Annual Costs *(c)* *(a+b)*

$322	$88,041	$88,363

(1) From Table 1 line (l)
(2*)* From Table 2 Total, column *(e)*

Budget Justification:

Direct labor – [NOTE: These costs are borne by the applicant]. Day to day administration of the rebate program, including marketing and printing, application processing, record keeping, liaison function, and installation verification inspections.

Other Direct Costs – Air-cooled ice machine rebates provide up to $300 towards the purchase of qualifying machines.

Table 4: Water Supply Benefits

Net water savings (acre-feet/year) _____143____

4a. Avoided Costs of Current Supply Sources

Sources of Supply *(a)*	Cost of Water ($/AF) *(b)*	Annual Displaced Supply (AF) *(c)*	Annual Avoided Costs ($) *(d)* *(b x c)*
Hetch Hetchy System	**$625.00**	**143**	**$89,375**
Total			

4b. Alternative Costs of Future Supply Sources

Future Supply Sources *(a)*	Total Capital Costs ($) *(b)*	Capital Recovery Factor (1) *(c)*	Annual Capital Costs ($) *(d)* *(b x c)*	Annual O&M Costs ($) *(e)*	Total Annual Avoided Costs ($) *(f)* *(d + e)*
Hetch Hetchy	$322	$303	$303	$88,041	$88,344
Total					

(1) 6% discount rate; Use Table 6- Capital Recovery Factor

4c. Water Supplier Revenue (Vendibility)

Parties Purchasing Project Supplies *(a)*	**Amount of Water to be Sold** *(b)*	**Selling Price ($/AF)** *(c)*	**Expected Frequency of Sales (%)** (1) *(d)*	**Expected Selling Price ($/AF)** *(e)* *(c x d)*	**"Option" Fee ($/AF)** (2) *(f)*	**Total Selling Price ($/AF)** *(g)* *(e + f)*	**Annual Expected Water Sale Revenue ($)** *(h)* *(b x g)*
SFPUC	143 af	$625	100%	$625	$0	$625	$189,375
Total							

(1) During the analysis period, what percentage of years are water sales expected to occur? For example, if water will only be sold half of the years, enter 50% (0.5).

(2) "Option" fees are paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

4d: Total Water Supply Benefits

(a) Annual Avoided Cost of Current Supply Sources ($) from 4a, column (*d*)	$189,375
(b) Annual Avoided Cost of Alternative Future Supply Sources ($) from 4b, column (*f*)	$0
(c) Annual Expected Water Sale Revenue ($) from 4c, column (*h*)	$189,375
(d) Total Net Annual Water Supply Benefits ($) (a + b + c)	$189,375

Table 5: Benefit/Cost Ratio

Project Benefits ($) (1)	**$189,375**
Project Costs ($) (2)	**$88,344**
Benefit/Cost Ratio	**2.14**

(1) From Tables 4d, row (d): Total Annual Water Supply Benefits
(2) From Table 3, column (*c)* : Total Annual Costs

Table 6: Capital Recovery Factor

(Use to obtain factor for Table 1, Line k or Table 4b, Column *(c)*

Life of Project (in years)	Capital Recovery Factor
7	0.1791
8	0.1610
9	0.1470
10	0.1359
11	0.1268
12	0.1193
13	0.1130
14	0.1076
15	0.1030
16	0.0990
17	0.0954
18	0.0924
19	0.0896
20	0.0872
21	0.0850
22	0.0830
23	0.0813
24	0.0797
25	0.0782
26	0.0769
27	0.0757
28	0.0746
29	0.0736
30	0.0726
31	0.0718
32	0.0710
33	0.0703
34	0.0696
35	0.0690
36	0.0684
37	0.0679
38	0.0674
39	0.0669
40	0.0665
41	0.0661
42	0.0657
43	0.0653
44	0.0650
45	0.0647
46	0.0644
47	0.0641

48	0.0639
49	0.0637
50	0.0634

Attachment A

Retrofit Of Water Cooled Ice Machine Incentive Program
Schedule

asks	Year 1				Year 2							
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
esign, market and promote materials for rebate program	X $				X $							
rovide Liaison to qualified facilties	X $	X $	X $	X $	X $	X $	X $	X $				
esign and print rebate forms	X $				X $							
rocess and Distribute rebate materials	X $	X $	X $	X $	X $	X $	X $	X $				
Develop a customer database of customers receiving ebates	$				$							
enerate internal progress reports and implement orrective measures as necessary	X $	X $	X $	X $	X $	X $	X $	X $				

ustomer Satisfaction Surveys	$	$	X $	X $	X $	X $	X $	X $				
roduce Quarterly Progress Reports for DWR	X $	X $	X $	X $	X $	X $	X $	X $				
roduce Final Program Report				X $			$X	X $				
uarterly Costs	$5,000	$5,000	$8,900	$8,900	$8,900	$8,900	$18,300	$				
otal Program Cost							$63,900					

(1) Item included in the annual $800 “Program Set-up Fee.” Figures are based on costs associated with the existing residential HECW program.

(2) Item included in the monthly $700 “Administrative Fee.” Figures are based on costs associated with the existing residential HECW program.